

### **REMARKS**

Upon entry of this amendment, claims 1-8 are all the claims pending in the application. Claims 9-13 have been canceled.

Applicant thanks the Examiner for approving the proposed drawing corrections filed April 29, 2003. Applicant submits formal drawings herewith incorporating the proposed changes. The Examiner is respectfully requested to acknowledge and approve these drawings in the next Office paper.

#### **I. Claim Rejections under 35 U.S.C. § 102(b)**

Claim 1 stands rejected under 35 U.S.C. § 102(b) as being anticipated by Macken (U.S. Patent No. 4,897,848).

Claim 1, as amended, recites the feature of a laser oscillation means which comprises at least a discharge electrode including an electrode tube and an insulator. Applicant submits that Macken fails to disclose or suggest at least this feature of claim 1.

In Macken, a catalyst layer is formed on a discharge tube which confines the discharge space. The catalyst layer is composed of a conductive precious metal such as gold, silver or platinum (see Abstract).

On the other hand, in the present invention, since the optical catalyst layer is not formed on a discharge part area, it is possible to use a material such as  $\text{TiO}_2$ . Thus, the present invention has an advantage in that the catalyst can be composed of insulative metals.

Furthermore, in the present invention, the catalyst layer is formed on an inner wall of a box which is apart from a discharge part. In Macken, however, the catalyst layer is formed on a discharge tube (see Fig. 1). Accordingly, Applicant respectfully submits that Macken also fails to disclose or suggest that the optical catalyst layer is formed on an inner wall of a box, as recited in claim 1.

Based on the foregoing, Applicant respectfully submits that Macken fails to disclose or suggest all of the features of claim 1. Accordingly, Applicant kindly requests that the rejection be reconsidered and withdrawn.

## **II. Claim Rejections under 35 U.S.C. § 103(a)**

A. Claims 2, 3, 7 and 8 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Macken (U.S. Patent No. 4,897,848). Applicant respectfully traverses this rejection on the following basis.

Claim 2 recites the feature of a plate member on which an optical catalyst is formed. The Examiner recognizes that Macken does not teach such a feature. Nonetheless, in a conclusory manner, the Examiner asserts that placing the catalyst on a plate rather than directly on the box would not significantly change the operation of the device and therefore, such a configuration would be a matter of obvious engineering design choice. Applicant respectfully disagrees.

The Examiner has utterly discounted the claimed feature the optical catalyst layer being formed on a plate. However, by placing the optical catalyst layer on a plate within the box,

rather than directly on a wall of the box, when the optical catalyst layer needs to be replaced, a user can simply replace the plate as opposed to having to replace the entire box. Therefore, Applicant submits that such a change is not a matter of mere design choice, as is suggested by the Examiner.

Furthermore, the Federal Circuit has held that a claimed invention should not be rejected as a mere "design choice" when the Applicant presents evidence of the technical advantages of the Applicant's structure. *See In re Chu*, 66 F.3d 292, 36 USPQ2d 1089 (Fed. Cir. 1995). Here, Applicant's disclosure identifies the operational benefits obtained by placing the optical catalyst layer on a plate member provided within the box. In particular, by providing the optical catalyst layer on a plate member, the optical catalyst layer can be replaced by simply replacing the plate member rather than replacing the entire box (Applicant's Specification, page 20, lines 1-9).

Therefore, because the feature of placing the optical catalyst layer on a plate member within the box confers technical advantages over the prior art, Applicant respectfully submits that such a feature would not have been a simple matter of design choice. Indeed, the Examiner has provided absolutely no factual basis as to why one of ordinary skill in the art would have been motivated to modify Macken such that the optical catalyst was placed on a plate member formed on an inner wall of a box.

Regarding the Examiner's assertion that such a modification to Macken would have been obvious engineering design choice, the United States Court of Appeals for the Federal Circuit has expressly stated that all *per se* rules of obviousness are legally invalid and that the obviousness analysis must be based on the prior art:

The use of per se rules, while undoubtedly less laborious than a searching comparison of the claimed invention--including all its limitations--with the teachings of the prior art, flouts section 103 and the fundamental case law applying it. Per se rules that eliminate the need for fact-specific analysis of claims and prior art may be administratively convenient for PTO examiners and the Board. Indeed, they have been sanctioned by the Board as well. But reliance on per se rules of obviousness is legally incorrect and must cease. Any such administrative convenience is simply inconsistent with section 103, which, according to Graham and its progeny, entitles an applicant to issuance of an otherwise proper patent unless the PTO establishes that the invention as claimed in the application is obvious over cited prior art, based on the specific comparison of that prior art with claim limitations. (Emphasis added)

*In re Ochiai*, 71 F.3d 1565, 1572, 37 U.S.P.Q.2D (BNA) 1127, 1134 (Fed. Cir. 1995).

The critical inquiry is whether there is something in the prior art as a whole to suggest the desirability, and thus the obviousness, of making the claimed structure. *In re Newell*, 13 U.S.P.Q.2d 1248, 1250 (Fed. Cir. 1989). Applicant respectfully submits that the Office Action does not cite to any evidence in the prior art that suggests an optical catalyst layer formed on a plate member provided at an inner wall of a box.

Accordingly, if the Examiner maintains the rejection of claim 2, Applicant respectfully requests the Examiner to identify relevant prior art which meets the requirements of the claims instead of mere assertions as to what would have been an obvious design choice.

Claim 3 depends from claim 2 and therefore incorporates all of the limitations thereof. Accordingly, Applicant submits that claim 3 is patentable at least by virtue of its dependency.

Independent claim 7 recites the feature of laser oscillation means that face each other across an intervening discharge space to excite a laser gas and to generate a laser beam. The

Examiner, however, has not specifically addressed this feature of the claim. The Examiner merely asserts that Macken discloses a laser oscillation means for employing a discharge to excite a laser gas and to generate a laser beam.

As shown in Fig. 1 of Macken, electrode 21A and electrode 22A are used to generate a laser beam. Applicant respectfully submits, however, that electrode 21A and 22A do not face each other across an intervening discharge space, as is required by claim 7.

Claim 7 also recites the feature of a recess portion arranged in the box for receiving ultraviolet rays. The Examiner recognizes that Macken does not teach a recess portion as claimed. Again, however, the Examiner states that such a feature would have been a matter of obvious engineering design choice. Applicant respectfully disagrees.

As discussed above, a claimed invention should not be rejected as a mere "design choice" when the Applicant presents evidence of the technical advantages of the Applicant's structure. Here, Applicant's disclosure identifies the operational benefits obtained by utilizing a recessed portion for receiving ultraviolet rays. In particular, by providing a recessed portion to receive the ultraviolet rays, the reflected ultraviolet rays are condensed and do not irradiate other components within the box (Applicant's Specification, page 27, lines 2-9).

Therefore, because the feature of a recessed portion for receiving ultraviolet rays confers unexpected advantages, Applicant respectfully submits that such a feature would not have been a simple matter of design choice. Accordingly, if the Examiner maintains the rejection of claim 2, Applicant respectfully requests the Examiner to identify relevant prior art which meets the

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requirements of the claims instead of mere assertions as to what would have been an obvious design choice.

Claim 8 depends from claim 7 and therefore incorporates all of the limitations thereof. Accordingly, Applicant submits that claim 8 is patentable at least by virtue of its dependency.

B. Claims 4-6 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Guch, Jr. et al. (U.S. Patent No. 5,550,851).

Claim 4, as amended, recites the feature of a graphitized layer which is formed on an inner wall of a box at a location where ultraviolet rays generated by a discharge are exposed. Applicant submits that Guch, Jr. fails to teach or suggest at least this feature of claim 4.

The present invention provides an apparatus which prevents a scattering of ultraviolet rays generated by discharge because ultraviolet rays promote deterioration of surrounding material. In contrast, Guch discloses a laser decontaminate apparatus which uses SiO<sub>2</sub> to absorb impurities (gaseous particles) and moisture in gas (see col. 1, lines 9-11), not to absorb ultraviolet rays.

In an illustrative embodiment, the present invention utilizes Alumilite aluminum (Al<sub>2</sub>O<sub>3</sub>) which is hardly deteriorated by ultraviolet rays. SiO<sub>2</sub>, on the other hand, causes ultraviolet rays to be reflected, not absorbed. Accordingly, Applicant respectfully submits that one of ordinary skill in the art would not have been motivated to expose the SiO<sub>2</sub> disclosed by Guch to

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ultraviolet rays because SiO<sub>2</sub> would reflect, not absorb, the ultraviolet rays, thereby causing deterioration due to exposure to the ultraviolet rays.

Based on the foregoing, Applicant respectfully submits that Guch fails to teach or suggest the feature of a graphitized layer formed on an inner wall of a box at a location where ultraviolet rays generated by a discharge are exposed. Accordingly, Applicant kindly requests that the rejection be reconsidered and withdrawn.

C. Claims 9-13 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Turner (U.S. Patent No. 4,905,249). Claims 9-13 are canceled by this amendment, thereby rendering the rejection moot.

### **III. Conclusion**

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

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Respectfully submitted,



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**23373**

CUSTOMER NUMBER

Date: October 14, 2003